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Formation and Coarsening of Roll Waves in Shear Flows Down an Inclined Rectangular Channel

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ABSTRACT

Some numerical results on roll waves formation in a long channel and in a periodic box for a model of shear shallow water flows are presented using finite volume Godunov scheme with MUSCL-Hancock second order extension. They are compared with experimentals results. The numerical results for the periodic box and a long channel are compared. The effect of wave coarsening is discovered. The stability of roll waves in the periodic box was studied. Some numerical results in the 2D case for a simplified model of shear shallow water flows are also presented.